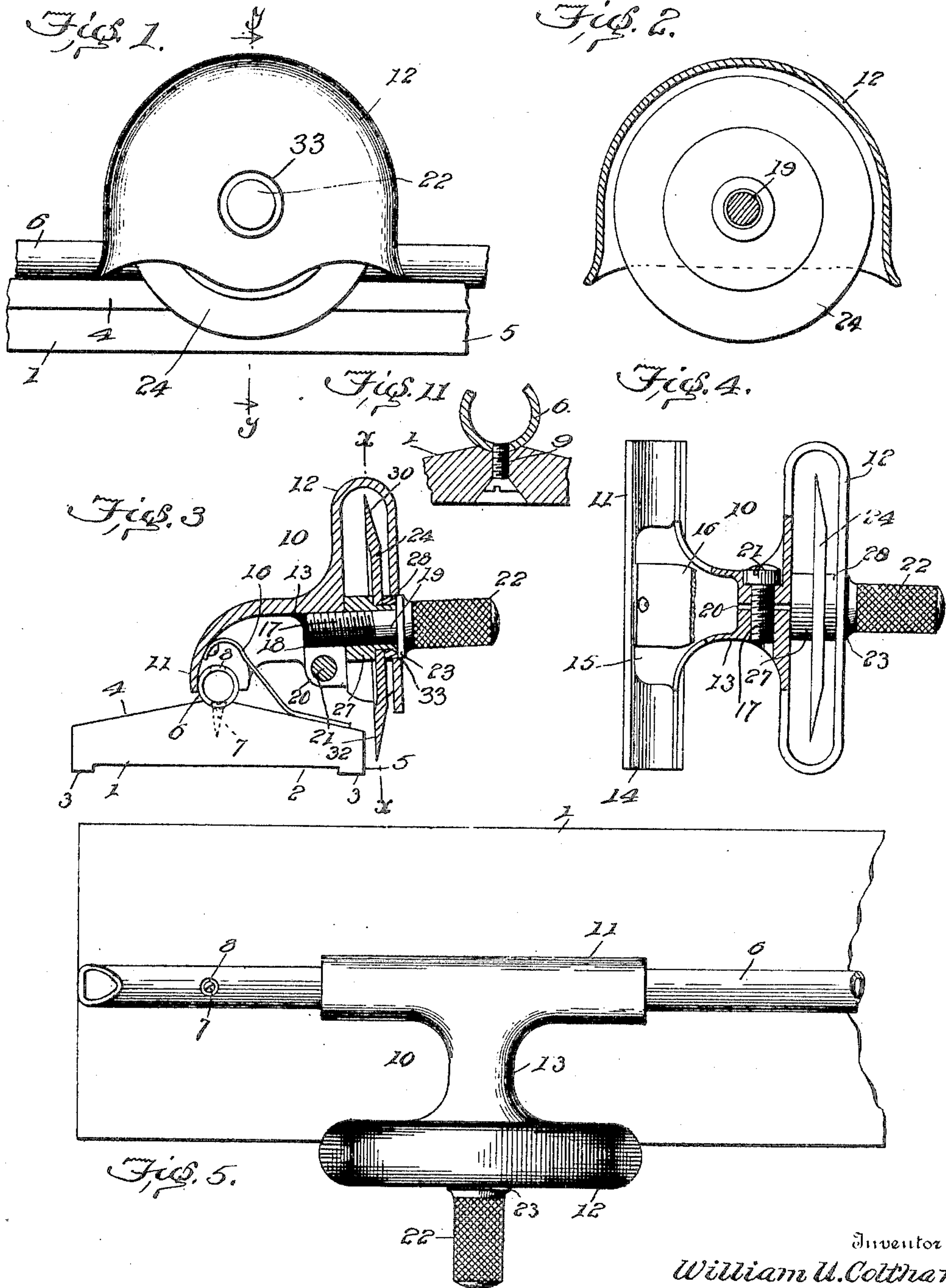


No. 804,520.

PATENTED NOV. 14, 1905.

W. U. COLTHAR.
CUTTING IMPLEMENT.
APPLICATION FILED AUG. 10, 1904.

2 SHEETS—SHEET 1.



Witnesses

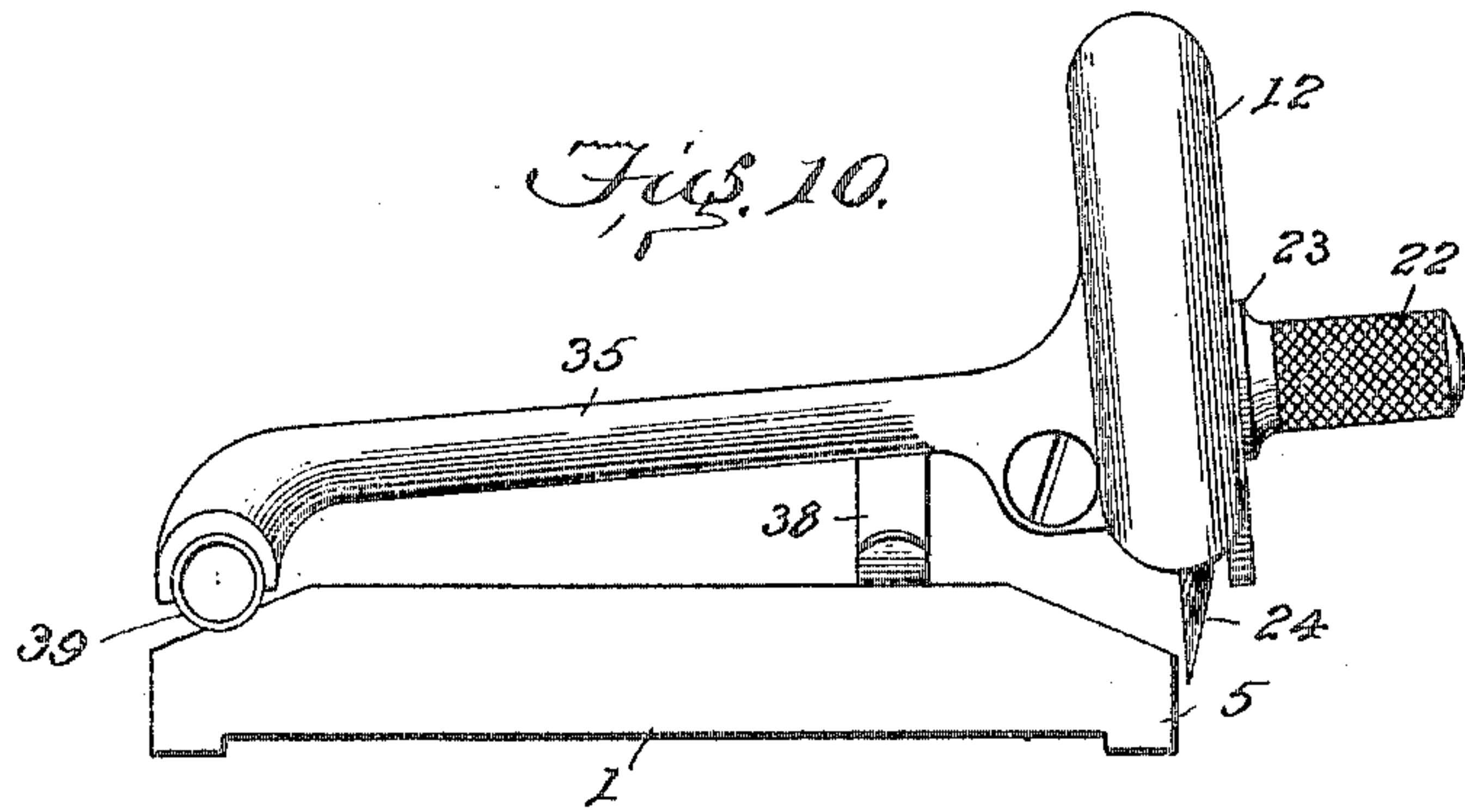
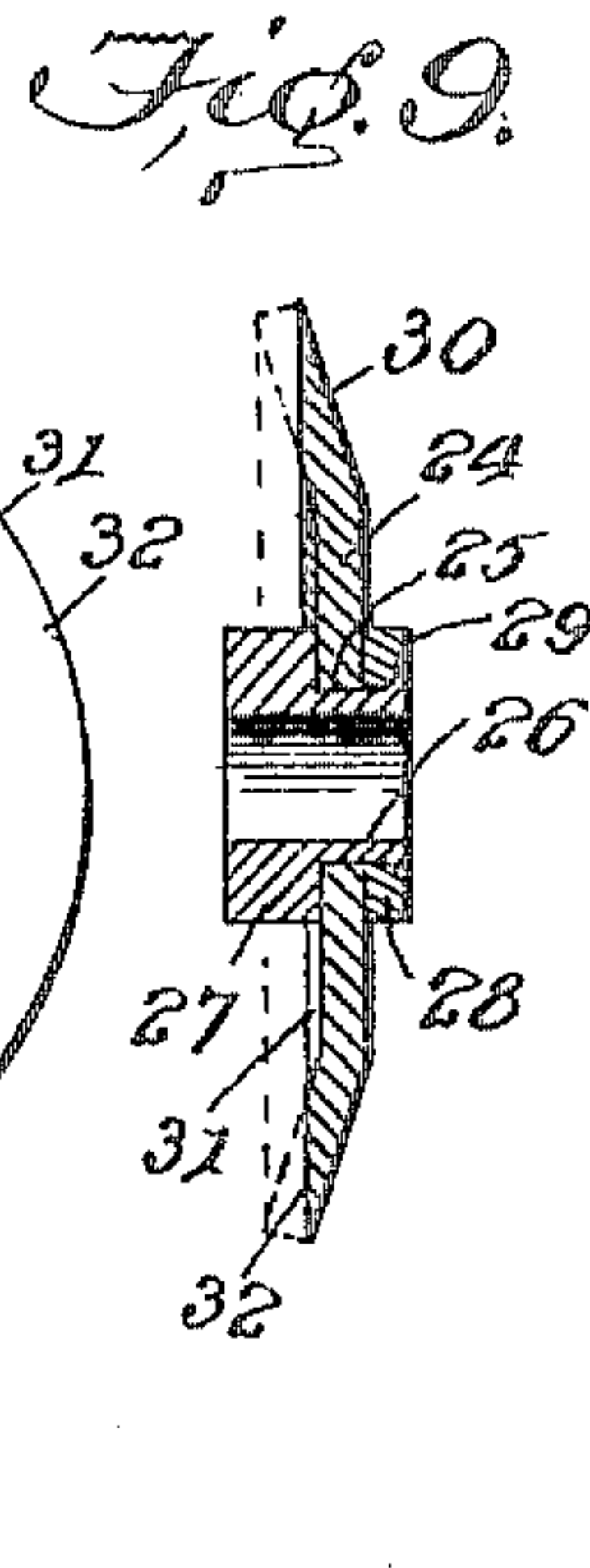
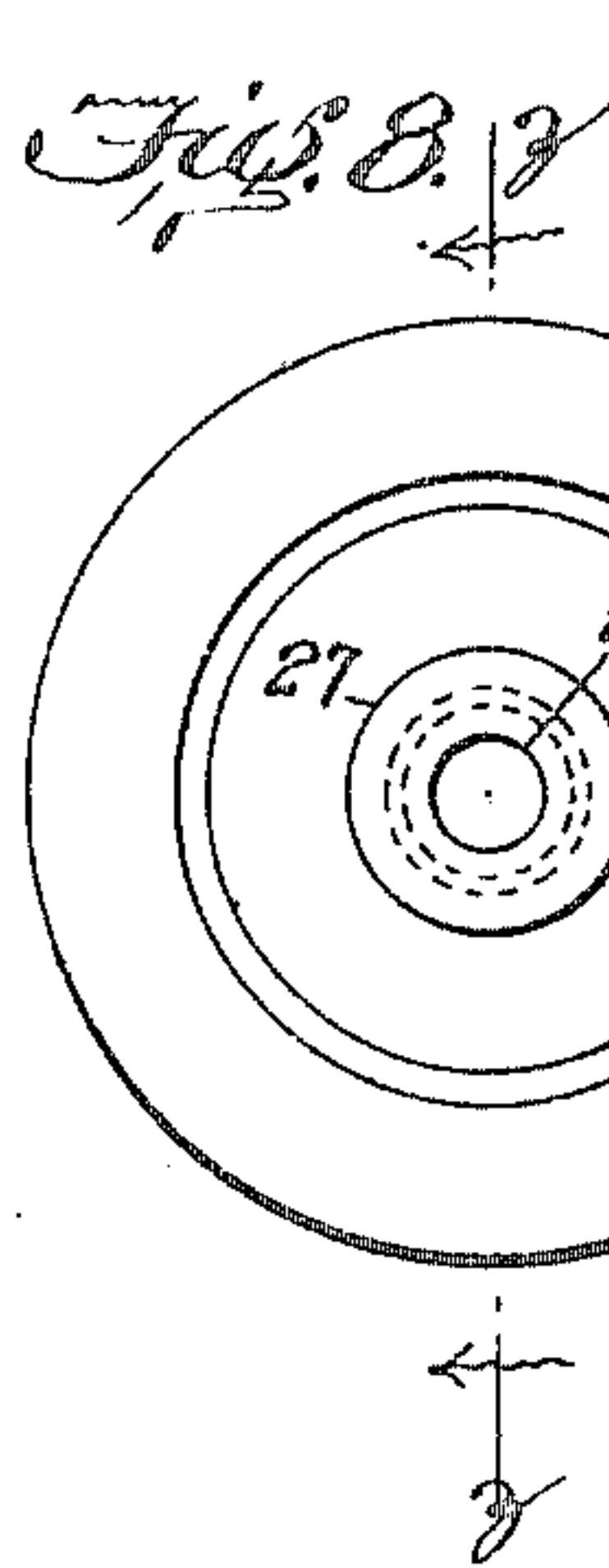
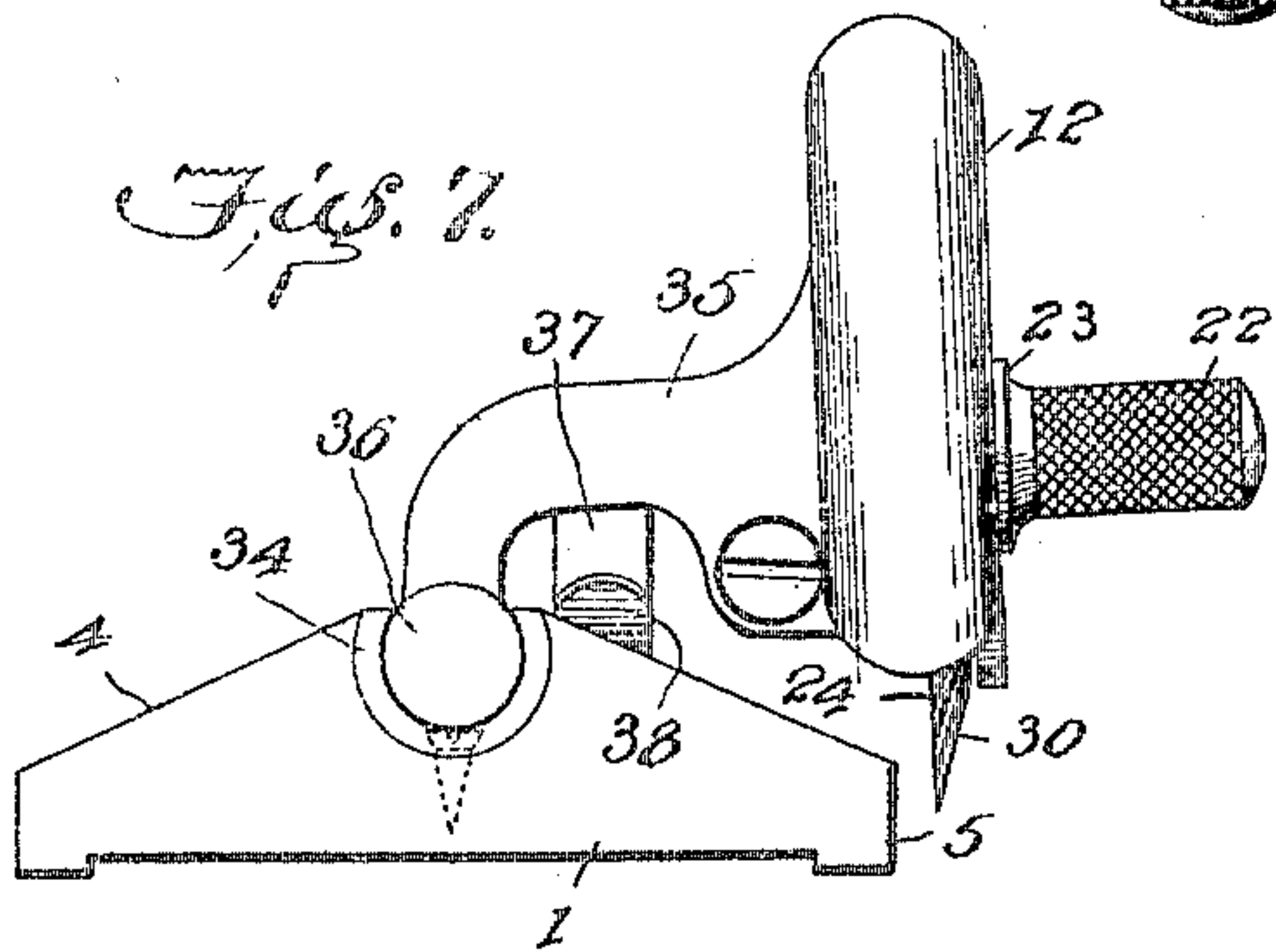
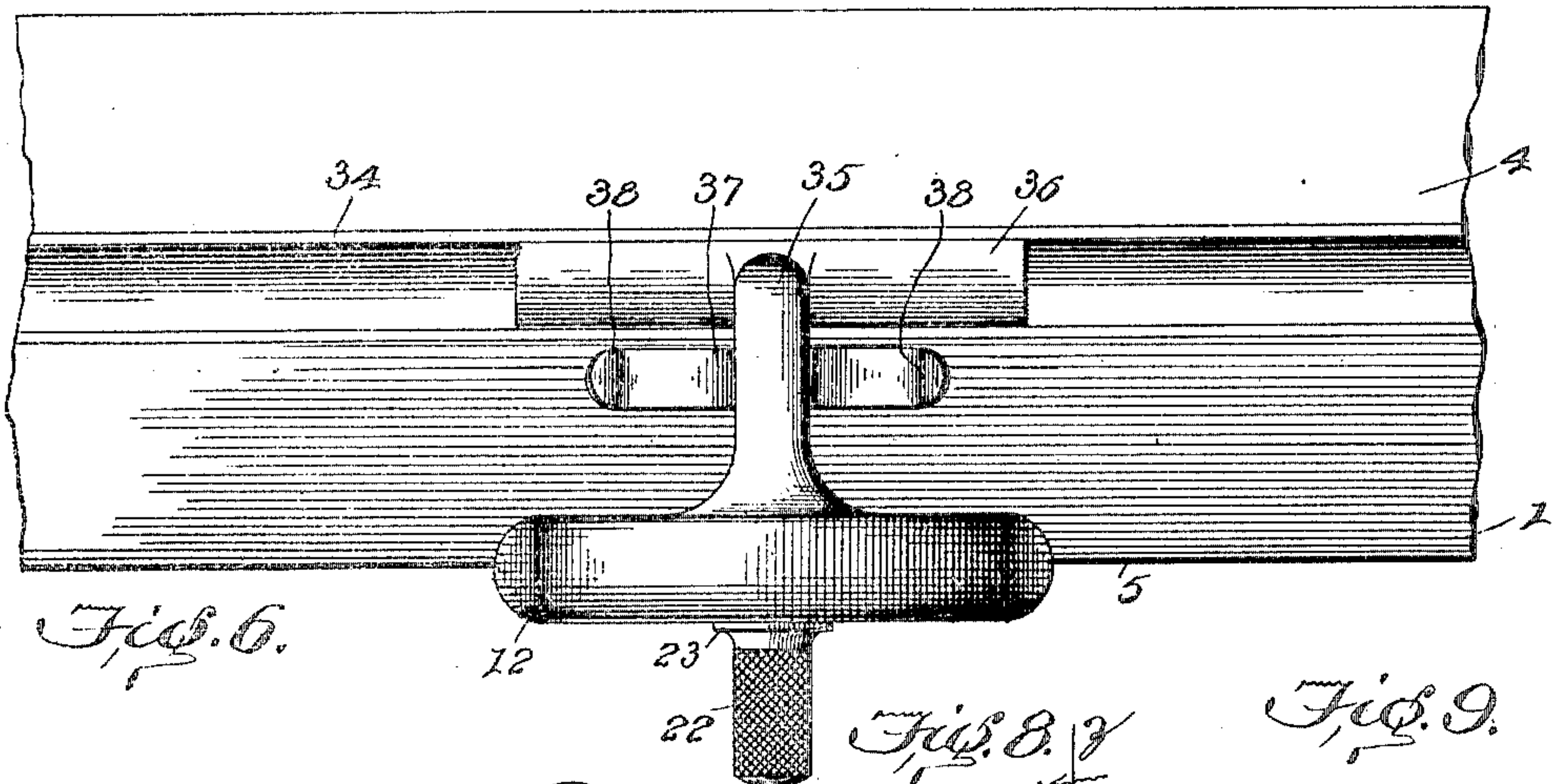
G. Howard Walmsley.
Irvine Miller.

Inventor
William U. Colthar;

By H. A. Gaulin,
Attorney

W. U. COLTHAR.
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2 SHEETS—SHEET 2.



Witnesses

G. Howard Walmsley.
Jessie Miller.

Inventor

William U. Colthar,

By *H. A. Foulke*,
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM U. COLTHAR, OF SPRINGFIELD, OHIO.

CUTTING IMPLEMENT.

No. 804,520.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed August 10, 1904. Serial No. 220,185.

To all whom it may concern:

Be it known that I, WILLIAM U. COLTHAR, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Cutting Implements, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to paper-trimmers, and more particularly to that class of paper-cutting tools employed for the purpose of trimming the edges of wall-paper prior to applying the same to the wall.

My present invention has for its object to provide a combined straight-edge and a trimmer or cutter coöperating therewith which shall be simple, strong and durable in construction, accurate and easy in operation, and inexpensive in cost of manufacture and maintenance.

To these ends my invention consists in certain novel features which I will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a structure embodying my invention in one form. Fig. 2 is a view of the same in vertical section, taken on the line *x x* of Fig. 3 and looking in the direction of the arrows. Fig. 3 is a vertical section taken on the line *y y* of Fig. 1 and looking in the direction of the arrows. Fig. 4 is an inverted plan view, partly in section and partly broken away, of the cutter-head detached. Fig. 5 is a plan view of the structure shown in Fig. 1. Fig. 6 is a plan view illustrating a modified form of my invention. Fig. 7 is an end elevation of the same. Fig. 8 is a face view or elevation of the cutting-disk detached. Fig. 9 is a sectional view of the same, taken on the line *z z* of Fig. 8 and looking in the direction of the arrows. Fig. 10 is a view illustrating another modified form, and Fig. 11 is a detail sectional view illustrating a modified form of connection between the straight-edge and guide.

Referring more particularly to the construction shown in Figs. 1 to 5, inclusive, which illustrates the preferred form of my invention, 1 indicates a straight-edge, which is preferably constructed of wood and is in the usual form of a long bar, along which the cutter travels and by which it is guided. This straight-edge is preferably recessed or relieved on its under side, as indicated at 2, thus form-

ing longitudinal bearing-surfaces 3 along the under side near each longitudinal edge of the bar, by reason of which construction the bar is lightened and at the same time is given a better bearing-surface, on which it rests when in use. The upper surface of the straight-edge is preferably inclined downward and outward toward each lateral edge, as indicated at 4, thus giving the straight-edge increased thickness along its central line, thereby further stiffening and strengthening the same and preventing any tendency to warp. Along the body of the straight-edge 1, parallel with the defining edge 5 thereof, there is arranged a guide 6. This guide is preferably constructed and located in the manner shown in Figs. 1 to 5, inclusive, in which it is located centrally with respect to the straight-edge 1, being mounted on top of the straight-edge, to which it is secured. It is preferably of metal, and I prefer to so form it as to permit the cutter-head not only to slide longitudinally thereon, but also to rock or rotate partially thereon, in the manner hereinafter described. I also prefer to form the guide 6 tubular or hollow, as shown, and to secure the same in position by means of screws 7, passing loosely through the lower portion of the tubular guide and screwing into the wooden body of the straight-edge, as shown in Fig. 3. Where this construction is employed, ordinary wood-screws may be used, and no threading or tapping of the metal guide is required. It is necessary, however, with this construction to provide openings 8 in the top of the tubular metal guide to permit the insertion of the screws and to give access to them for the screw-driver by which they are screwed in place. I may, however, employ the construction illustrated in detail in Fig. 11, in which screws 9 are employed, which pass upward through the straight-edge from below and are threaded into correspondingly-threaded apertures in the lower portion of the guide. In this case the apertures 8 in the guide may be dispensed with.

10 indicates the cutter head or gage as a whole, the same comprising a sleeve 11 to fit the guide, a hood or guard 12, in which the cutting-disk is mounted, and an intermediate body portion 13, connecting the sleeve and guard. These parts are preferably rigidly connected to each other, and in practice I prefer to cast them or form them all in one integral piece. The sleeve 11 in the preferred form of construction now being described fits

over the guide 6, being open on its under side, as indicated at 14, and embracing the guide from above and extending downward a sufficient distance below the middle portion of the guide to embrace more than half of the circumference of the same, so as to maintain the connection between said sleeve and the guide. Engagement of these parts is effected by slipping the sleeve over the guide at one end of the straight-edge. It will be seen that the construction is such that the cutter may not only slide longitudinally relatively to the straight-edge, being guided during its movement by the guide, but may also rock or rotate around the axis of the guide. At the central portion of the sleeve, where it is joined by the body 13, said sleeve is enlarged or recessed, as indicated at 15, so that the sleeve in practice fits the guide only at each end thereof. In this recessed portion there is secured one end of a spring 16, the other end of which bears upon the upper surface of the straight-edge 1 and tends to lift the cutter-head and raise the cutting-disk clear of the work. The body 13 is provided with a threaded opening 17, arranged at right angles to the sleeve 11, said threaded opening receiving the correspondingly-threaded end 18 of the non-rotating trunnion or arbor 19 of the cutting-disk. The body 13 is split or divided vertically where the aperture 17 is located, as indicated at 20, and the divided portions are connected by a screw 21, passing loosely through one of said portions and threaded into the other one, so that by tightening said screw the parts of the body 13 may be clamped upon the arbor 19, so as to prevent the same from unscrewing, and thus becoming loose. The arbor has a smooth or unthreaded portion on which the cutting-disk is mounted and is provided outward beyond said bearing portion with a head or extension 22 of greater diameter than the body of said arbor, thus forming a shoulder 23 adjacent to the bearing portion of the arbor. The head 22 extends outward sufficiently to form a convenient finger-grasp and is preferably knurled or roughened, as shown, to prevent slipping and facilitate the unscrewing of the arbor when it is desired to remove the cutter. The cutting-disk (indicated as a whole by the numeral 24) is mounted on the smooth or bearing portion of the arbor and is formed, as is usual in such structures, from a comparatively thin sheet of steel. Its narrowness is such that it will not provide in itself a sufficient bearing on the arbor to properly support the cutting-disk when at work. I therefore provide a bushing for this purpose. The disk is provided with a central aperture 25, somewhat larger than the diameter of the arbor, and in said aperture there is fitted a sleeve-like bushing 26, provided at one side with an annular head or enlargement 27, integral therewith, which bears against the inner face of the cutting-disk. On the other side of the cut-

ting-disk the sleeve 26 extends some distance beyond the outer face of the disk and has fitted on it an annulus 28, the aperture through which is countersunk or flaring at its outer end, as indicated at 29. The sleeve 26 extends some little distance beyond the annulus 28 when the parts are first assembled, and this extending end is swaged down, so as to fill the space formed by the countersink, thus firmly uniting the bushing, annulus, and cutting-disk, leaving the bushing with its opposite ends smooth and in the form of plane surfaces. The bushing is apertured to fit upon the arbor, and its inner face bears against the outer face of the body 13, while the outer face of the bushing bears against the shoulder 23 on the arbor. By adjusting the arbor any wear may be taken up and the cutting-disk may be so held as to prevent vibration thereof. The cutting-disks are usually formed by cutting a circular piece from a flat piece of steel and then beveling off the edge of the circle on one side, as indicated at 30, to form the cutting edge. These cutters quickly become dull and in sharpening them it is necessary to grind the entire flat or unbeveled face of the disk, which requires considerable time and is an operation difficult to perform with accuracy. To overcome this difficulty and at the same time avoid the necessity of grinding the bevel 30, I construct the cutting-disk by stamping it from a flat piece of steel, at the same time bending its marginal portion to one side, as indicated in both full and dotted lines in Fig. 9. This immediately forms the bevel 30 without requiring any grinding, and by grinding away the portion shown in dotted lines in Fig. 9 in a plane parallel with the general plane of the body of the disk the cutting edge is formed and the disk is left with a central recess 31 on the inner side, leaving only a comparatively narrow annular face 32, which can be readily ground when it is desired to sharpen the cutter. The housing 12, which incloses the cutting-disk, is open at the under side, the disk projecting below said housing, as shown. Said housing incloses the disk except at the under side, and forms a hand-grasp by means of which the cutter-head may be readily manipulated, moved longitudinally along the straight-edge, and depressed against the resistance of the spring 16. An opening 33 is formed in the outer wall of the housing or guard of sufficient size to permit the passage of the head 22 of the arbor 19.

It will be observed that the straight-edge will have a firm bearing upon the work and that it is materially strengthened by the metallic guide extending longitudinally of the central portion thereof, the structure of said guide being such as to resist any tendency to warp in the wooden body of the straight-edge. The cutter-head may be engaged with the guide by slipping it onto the same at either end of the straight-edge, and when thus en-

gaged it is held up by the spring 16 in a position such that the cutter stands clear of the work. The operator can then grasp the cutter-head, which is adapted to that purpose, and can press downward on the same to bring the cutter into contact with the paper immediately adjacent to the determining edge 5 of the straight-edge, and may then move the cutter along the straight-edge severing the paper along the desired line. It will be seen that the cutter-head swings upon an axis parallel to the direction of cut, this axis being preferably the central axis of the guide, around which the cutter-head is free to rotate or oscillate as it travels along the same.

The structure is simple and strong, the various parts of the head being rigidly united and without working joints. The cutting-disk is firmly supported, has an extended bearing on the arbor, so as to not readily wear on its bearing, and such wear as occurs can be readily taken up. The cutter can be readily taken out, is easily sharpened and replaced, and is firmly held in position when at work. The structure as a whole is simple and durable and extremely accurate in the character of its work.

It is obvious that various modifications may be made without departing from the principle of my invention. For instance, where the guide is tubular in form the arrangement of the engaging members of the cutter-head and guide may be reversed, as shown in Figs. 6 and 7. In this construction the guide (indicated by the reference-numeral 34) is slotted longitudinally at the top, said slot being of less width than the interior of the tube, and the cutter-head (indicated by the numeral 35) is provided with an engaging member 36, which fits within the guide so as to slide longitudinally and oscillate therein. With this construction I prefer to employ a lift-spring 37, secured to the under side of the body of the cutter-head and extending downward therefrom in each direction parallel with the guide, so as to bear upon the top of the straight-edge, its ends being preferably upturned, as shown at 38, to prevent catching on the straight-edge and facilitate the engagement of the cutter-head with the guide. In this construction I also prefer to embed the guide within the body of the straight-edge, as clearly shown in Fig. 7.

Another modification (shown in Fig. 10) shows the guide (here indicated by the numeral 39) as located on that side of the straight-edge farthest from the cutting-disk, the body of the cutter-head being correspondingly elongated. This construction has the advantage of permitting the cutting-disk to move in a flatter arc, its motion being more nearly in a vertical plane.

Various other modifications will readily suggest themselves, and I therefore do not wish to be understood as limiting myself strictly to

the precise details of construction hereinbefore described, and shown in the accompanying drawings.

The bushing is preferably constructed of brass or similar material, which will form a good bearing on the arbor, which latter is preferably of steel.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A paper-trimmer comprising a free straight-edge having a longitudinal guide of cylindric form supported thereon, and a cutter-head having an engaging part of similar cross-section fitting on the guide and having widely-separated bearings thereon, so as to rock and slide freely relatively thereto without binding under pressure, said cutter-head being provided with a cutting-disk, the axis of rotation of which is at right angles to the longitudinal axis of the engaging member of the head, said disk being movable across the plane of the bottom of the straight-edge immediately adjacent to the defining edge thereof, substantially as described.

2. A paper-trimmer comprising a free straight-edge having a longitudinal guide of cylindric form supported thereon, a cutter-head having an engaging part of similar cross-section fitting the guide and having widely-separated bearings thereon, so as to rock and slide freely relatively thereto without binding under pressure, said cutter-head being provided with a cutting-disk, the axis of rotation of which is at right angles to the longitudinal axis of the engaging member of the head, said disk being movable across the plane of the bottom of the straight-edge immediately adjacent to the defining edge thereof, and a spring carried by said cutter-head and bearing upon the straight-edge to support the cutter-head, substantially as described.

3. A paper-trimmer comprising a straight-edge having a longitudinal guide of cylindric form supported thereon and having unobstructed ends, and a removable cutter-head having an engaging part of a cross-section similar to that of the guide, adapted to be engaged with and disengaged from the guide at the ends thereof, and fitting and extending longitudinally of the guide so as to rock and slide freely relatively thereto without binding under pressure, said cutter-head being provided with a cutting-disk, the axis of rotation of which is at right angles to the longitudinal axis of the engaging member of the head, whereby said disk is movable across the plane of the bottom of the straight-edge immediately adjacent of the defining edge thereof, substantially as described.

4. A paper-trimmer comprising a straight-edge having a longitudinal guide of cylindric form supported thereon and having unobstructed ends, a removable cutter-head hav-

ing an engaging part of a cross-section similar to that of the guide, adapted to be engaged with and disengaged from the guide at the ends thereof, and fitting and extending longitudinally of the guide so as to rock and slide freely relatively thereto without binding under pressure, said cutter-head being provided with a cutting-disk, the axis of rotation of which is at right angles to the longitudinal axis of the engaging member of the head, whereby said disk is movable across the plane of the bottom of the straight-edge immediately adjacent to the defining edge thereof, and a spring carried by said cutter-head and bearing upon the straight-edge to support the cutter-head, substantially as described.

5. A paper-trimmer comprising a free straight-edge having a guide of cylindric form secured thereon and having unobstructed ends, and a cutter-head comprising a sleeve fitting and extending longitudinally of the guide so as to rock and slide freely relatively thereto without binding under pressure, said sleeve being cut away longitudinally as to its under part so as to embrace more than one-half of the circumference of the guide without entirely encircling the same and thereby clear the guide-support, said cutter-head having a cutting-disk movable across the plane of the bottom of the straight-edge immediately adjacent to the defining edge thereof, substantially as described.

6. A paper-trimmer comprising a straight-edge having a metallic guide of cylindric form secured to and bearing throughout its length upon the upper surface of the straight-edge, and a cutter-head comprising a sleeve fitting said guide and open longitudinally along its under side so as to embrace more than one-half of the circumference of the guide and leave a clearance between the lower portion of the sleeve and the straight-edge to permit the sleeve to rock upon the guide, said cutter-head having a cutting-disk, the axis of rotation of which is at right angles to the longitudinal axis of the sleeve, said disk being movable across the plane of the bottom of the straight-edge immediately adjacent to the defining edge thereof, substantially as described.

7. A paper-trimmer comprising a straight-edge having a metallic guide of cylindric form secured to and bearing throughout its length upon the upper surface of the straight-edge, and a cutter-head comprising a sleeve fitting said guide and open longitudinally along its under side so as to embrace more than one-half of the circumference of the guide and leave a clearance between the lower portion of the sleeve and the straight-edge to permit the sleeve to rock upon the guide, said cutter-head having a cutting-disk, the axis of rotation of which is at right angles to the longitudinal axis of the sleeve, said disk being movable across the plane of the bottom of the straight-edge immediately adjacent to the de-

fining edge thereof, and a spring carried by said cutter-head and bearing upon the straight-edge to support the cutting-disk above the plane of the bottom of the straight-edge, substantially as described.

8. A paper-trimmer comprising a straight-edge having a metallic guide of cylindric form secured to and bearing upon its upper surface, a cutter-head comprising an open sleeve fitting said guide and embracing more than one-half of its circumference, said cutter-head having a cutting-disk, and a spring carried by said cutter-head and bearing upon the straight-edge to support the cutter-head, substantially as described.

9. A paper-trimmer comprising a free wooden straight-edge of maximum thickness at its central portion, a tubular metallic guide seated in and secured to the central portion of said straight-edge and extending along the same from end to end, and a cutter-head having a sleeve adapted to be slipped over the guide at the end thereof and open at the bottom so as to embrace more than one-half of the circumference thereof and leave a clearance between said sleeve and the straight-edge, whereby said cutter-head may rock and slide on said guide, substantially as described.

10. A paper-trimmer cutter-head having an arm provided at one end with a sleeve extending at right angles to the arm, the sleeve being open along its under side, the arm being provided at its other end with a guard or hood located in a plane parallel with said sleeve, an arbor arranged at right angles to the longitudinal axis of the sleeve, and a cutting-disk mounted on said arbor within the guard or hood, substantially as described.

11. A paper-trimmer having a head provided with a threaded aperture, split across the same, and having a clamping-screw connecting the split portions, an arbor threaded to fit said aperture and provided with a bearing portion and a shoulder adjacent thereto, and a cutting-disk mounted on said bearing portion between the body of the head and said shoulder, substantially as described.

12. A paper-trimmer having a head provided with a threaded aperture, split across the same, and having a clamping-screw connecting the split portions, an arbor threaded to fit said aperture and provided with a bearing portion and a shoulder adjacent thereto, and a cutting-disk mounted on said bearing portion between the body of the head and said shoulder, said body portion having a guard or hood for the disk, and the arbor having a head extending loosely through and beyond said guard and knurled or roughened, substantially as described.

13. In a paper-trimmer, a thin cutting-disk having a central aperture, an arbor of smaller diameter than said aperture, and a bushing for said disk comprising a sleeve fitting the aperture and arbor and having a head bearing

against one side of the disk, said sleeve projecting beyond the other side of the disk, and an annulus fitting on said projecting portion and bearing against said other side of the disk, 5 said annulus being countersunk as described, and the projecting end of the sleeve being upset or swaged into the countersink, whereby the disk is firmly clamped between the head and annulus, substantially as described.

10 14. In a paper-trimmer, a cutter-head having a body provided with a threaded aperture, a non-rotating arbor threaded at one end to fit said aperture and having adjacent to said threaded portion a bearing portion and

shoulder, said arbor being adapted to be 15 turned to adjust the cutting-disk, means for locking said arbor in adjusted position, and a thin cutting-disk having an extended bushing fitting on the bearing portion of the arbor between the cutter-head body and the shoulder 20 of the arbor, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM U. COLTHAR.

Witnesses:

IRVINE MILLER,
F. W. SCHAEFER.